

4.13 TRAFFIC AND TRANSPORTATION

4.13.1 Regional and Local Circulation System

Livermore Site

Regional access to the Livermore Site by motor vehicle is from I-580, which runs east and west approximately 1 mile north of the Livermore Site. As depicted in Figure 4.13.1–1, the Vasco Road/I-580 interchange provides access to the western site boundary, and the Greenville Road/I-580 interchange provides access to the eastern site boundary.

Approximately 35 percent of the Livermore Site employees live within 12 miles of the Laboratory (LLNL 2001d). The remaining employees come to work from greater distances, mostly from the counties of Alameda, San Joaquin, Contra Costa, and Stanislaus. Many of these commuters travel in personal vehicles and arrive either on local roads or on I-580. Alternate modes of commuter transportation, such as carpools, vanpools, bicycles, or public transit, are described in Section 4.13.6. Trucks carrying radioactive or hazardous material shipments almost exclusively arrive from or depart to the east on I-580 and I-5, except for local deliveries from the Bay Area.

Site 300

Regional access to Site 300 is from I-580 to Corral Hollow Road. Alternately, travel between the Livermore Site and Site 300 is by way of Tesla Road as shown in Figure 4.13.1–1. Tesla Road changes to Corral Hollow Road at the Alameda-San Joaquin county line. There is one primary access gate to Site 300 from Corral Hollow Road plus another gate for the pistol range.

4.13.2 Local Traffic Conditions and Issues

Livermore Site

Traffic Conditions

The major street system in the vicinity of LLNL includes I-580, South Vasco Road, Greenville Road, East Avenue, and Patterson Pass Road. Most of these are primarily located in the city of Livermore, but with portions of all streets lying in unincorporated portions of Alameda County. Figure 4.13.1–1 shows a vicinity map and existing daily traffic volumes.

I-580 is a major east-west freeway in the vicinity of the Livermore Site. This roadway is a connector freeway between I-5, which extends the entire length of California, and I-80, the major freeway in the San Francisco/Oakland area. I-580 is an eight-lane roadway from east of the Altamont Pass near Livermore to the I-80 complex. I-580 also continues over the Richmond-San Rafael Bridge to connect with Highway 101 in Marin County. In the Livermore vicinity, I-580 carries approximately 120,000 vehicles per day with about 10.4 percent trucks. I-580 experiences significant congestion during extended peak commute hours in the morning; the westbound lanes experience congestion in the Vasco Road/Greenville Road area (and beyond). In the evening, the eastbound lanes are congested from west of I-680 on the west to the Altamont Pass and eastward. Because of the congestion on I-580, the three parallel roads that connect the Tri-Valley area with the San Joaquin Valley—Patterson Pass Road, Tesla Road, and Altamont Pass Road—are increasingly used by commuters.

South Vasco Road is an important north-south roadway with four to six lanes and a median between East Avenue and I-580, with a continuation north of I-580. This roadway serves as a major route for traffic to LLNL, with an estimated 36 percent of all traffic accessing the site by way of South Vasco Road (LLNL 2002be). South Vasco Road connects to I-580 with an interchange that will require upgrading in the future. Daily traffic volumes average 30,000 vehicles per day between I-580 and Las Positas Road, 26,200 vehicles per day between Las Positas Road and Patterson Pass Road, and 16,600 vehicles per day between Patterson Pass Road and East Avenue along the western border of the Livermore Site. South Vasco Road has a grade-separated over-crossing of the Union Pacific Railroad, located between Brisa Street and Patterson Pass Road, and an at-grade crossing of a different, lightly used, Union Pacific Railroad track north of Brisa Street. This crossing is protected with crossing gates. South Vasco Road has existing traffic signals at seven of the nine intersections between I-580 and East Avenue (Industrial Way, Las Positas Road, Brisa Street, Patterson Pass Road, Daphne Drive/Westgate Drive, Emily Way/Mesquite Way, and East Avenue). The South Vasco Road intersections with Preston Avenue and Naylor Avenue do not have traffic signals. In addition to serving the Livermore Site and existing residential districts west of the Livermore Site, South Vasco Road provides key access to the large industrial/business parks located north of the area extending from Greenville Road to west of South Vasco Road. South Vasco Road also provides access to the existing Altamont Commuter Express (ACE) (see Section 4.13.6) commute train station located near the southwest quadrant of the intersection of South Vasco Road and Brisa Street. The northern section of South Vasco Road, generally between I-580 and Las Positas Road, experiences the greatest degree of congestion in this corridor due to higher traffic volumes and a greater density of intersections with traffic signals.

Greenville Road is the other north-south roadway serving the Livermore Site. Portions of Greenville Road are two, three, four, and six lanes wide, with the wider sections to the north. Ultimately, Greenville Road is expected to be six lanes wide with a median north of National Drive and four lanes wide with a median between National Drive and East Avenue. (As noted elsewhere, the city of Livermore is currently updating its general plan and its circulation element, which may result in new ultimate descriptions of all major streets in the city). Traffic volumes on Greenville Road vary from 15,600 vehicles per day near Southfront Road to 12,000 vehicles per day near Patterson Pass Road. It is estimated that 21 percent of all Livermore Site traffic uses Greenville Road for access (LLNL 2002be).

Greenville Road has a split interchange with I-580. The westbound ramps on the north side of I-580 form a buttonhook interchange with Northfront Road. The eastbound ramps on the south side of I-580 form a buttonhook interchange with Southfront Road. Both buttonhook intersections are controlled with stop signs. Greenville Road passes beneath I-580 and forms the connection between Northfront Road and Southfront Road, to complete the interchange. The interchange will be upgraded and modified in the future, but there are no projects scheduled at this time.

There are nine public street intersections with Greenville Road between Northfront Road and East Avenue. Four of these intersections have traffic signals (Southfront Road, Las Positas Road, National Drive, and Lupin Way/Eastgate Drive). The intersections without signals are Northfront Road, Hawthorne Avenue, Marathon Drive, Patterson Pass Road, and East Avenue. Greenville Road has an antiquated grade separation of the Union Pacific Railroad located between National Drive and Marathon Drive. The railroad passes over the roadway, which is at grade. The portion of Greenville Road below the railroad overpass is a narrow two-lane section on reversing curves. This grade separation and about 600 feet of roadway will be upgraded to modern standards within the next 2 years in a project sponsored by the city of Livermore.

Greenville Road connects with Tesla Road south of East Avenue. In this area, Greenville Road is a straight, two-lane roadway traveling through rolling terrain. It has an estimated traffic volume of 3,000 vehicles per day.

East Avenue is the major east-west roadway serving the Livermore Site. An estimated 43 percent of all Livermore Site traffic uses East Avenue for access (LLNL 2002be). The western half of the section of East Avenue between South Vasco Road and Greenville Road is four lanes wide, and the eastern half has two lanes. This roadway was closed and gated in 2003 and will not be usable for non-Livermore Site or SNL/CA traffic. (See a description of this proposed change under “Relevant Transportation Issues” in this section.) The daily two-way traffic on this section of East Avenue is about 10,350 vehicles per day east of South Vasco Road and about 3,200 vehicles per day west of Greenville Road. According to a recent traffic study (Korve 1999), only about 2 percent of all traffic on this roadway was not related to the Livermore Site or SNL/CA.

West of South Vasco Road, East Avenue serves as an arterial road linking predominately residential land uses abutting the East Avenue corridor, with downtown uses to the west and Livermore Site/industrial uses to the east. East Avenue is generally a five-lane roadway with the fifth lane serving left turn movements. East Avenue extends approximately 2.5 miles westerly to South Livermore Avenue. There are traffic signals at the East Avenue/South Vasco Road

intersections as well as along East Avenue at the intersections of Charlotte Way, North Mines Road, Loyola Way, Madison Avenue, Hillcrest Avenue, Dolores Street, and South Livermore Avenue. The daily traffic volume on East Avenue, west of South Vasco Road, is approximately 12,500 vehicles per day.

Patterson Pass Road is a four-lane divided highway between South Vasco Road and Greenville Road, located just north of the Livermore Site. Industrial buildings occupy the north side of the street; the south side of the street is an undeveloped buffer for the Livermore Site. Patterson Pass Road carries about 6,200 vehicles per day. The Patterson Pass Road intersection with South Vasco Road has a traffic signal and the Greenville Road intersection is controlled by stop signs.

West of South Vasco Road, Patterson Pass Road extends about 1.5 miles to North Mines Road, which has a connection to First Street since a railroad overpass was constructed in 1999. The Patterson Pass Road/North Mines Road system provides access to a major residential portion of Livermore and also provides an additional route for employees to reach the Livermore Site.

East of Greenville Road, Patterson Pass Road extends about 10.5 miles east to an interchange with I-580 on the west side of the city of Tracy. In this section, Patterson Pass Road is a winding two-lane roadway with no paved shoulders. Due to congestion on I-580 through the Altamont Pass, Patterson Pass Road is receiving increased usage during commute periods. The current traffic volumes are estimated at 3,500 vehicles per day. East and north of the I-580 interchange, Patterson Pass Road changes its name to Mountain House Parkway, which extends as a north-south roadway into the newly developing community of Mountain House, located on the north side of I-205.

Relevant Transportation Issues

City of Livermore General Plan Update

The city of Livermore is currently updating its general plan. Two general plan issues that relate to transportation are land use and circulation. Livermore has had its update process underway since April 2002, and the schedule calls for completion of the process by September 2003.

The city of Livermore has made some interim land use decisions that could be a precursor to the direction the final general plan update will take. At a December 2002 meeting, the city council decided to take action that would establish an urban limit line around the borders of the city. The urban limit line on the east side of the community generally would follow the boundary of Greenville Road. This boundary would preclude any residential-, employment-, or transportation-related developments that had been contemplated east of Greenville Road, between Southfront Road and the Livermore Site. With the placement of the growth boundary, this land would not be immediately available for LLNL-related uses and their associated traffic impacts. The same urban limit line has been drawn to preclude any major residential development in north Livermore, north of I-580. A proposal to develop up to 12,500 homes with a related population of about 30,000 would be precluded by the adoption of the urban limit line as proposed.

The circulation element is also being updated. The city of Livermore is developing a major traffic model to forecast the traffic volumes and impacts resulting from various land use

proposals that will be considered as part of the process. The circulation element may change the function of any of the major streets described above, although it is not likely that this process will change the role and function of South Vasco Road, Greenville Road, East Avenue, Patterson Pass Road, or Tesla Road. The updated traffic model will be able to determine if ultimate widths of these and other major streets should be adjusted from earlier plans.

Road Improvements Near the Livermore Site

The city of Livermore is contemplating the update of the Vasco Road/I-580 interchange. The interchange would be improved in stages, and the first stage would be to modify and install signals on the eastbound ramps. Signals would also be added to Preston Avenue. The net effect of the first stage would be to improve the capacity and safety of the south side of the interchange by removing the loop off-ramp and replacing it with a ramp with traffic signals located closer to I-580. This would reduce the speed of traffic exiting the freeway and increase the distance between Preston Avenue and the I-580 off-ramp. Later improvements would improve the ramps on the north side of the interchange. The first stage is scheduled for 2005 although, because of budget limitations, the actual construction could be delayed.

The city of Livermore is planning to construct improvements on Greenville Road near the Union Pacific Railroad structure south of National Drive. In this area, the roadway is a narrow two lanes and has reversing curves in the railroad area. The roadway will be straightened and widened to four lanes. The total project length is about 600 feet. The work was scheduled to start in 2003.

Security Upgrade of East Avenue at the Livermore Site

LLNL and SNL/CA have conducted studies to close East Avenue as a public street between South Vasco Road and Greenville Road. Although this closure was identified in the 1992 LLNL EIS/EIR, heightened security at the Nation's government facilities has prompted a re-examination of this closure, which has been evaluated in an environmental assessment (EA) (DOE 2002i, DOE 2002h) and is part of the No Action Alternative in this SWEIS. In 2003, DOE placed this East Avenue segment under administrative control and constructed security checkpoints at both ends of the segment. A truck inspection station would be built west of the Greenville Road intersection. Because only two percent of the existing traffic on East Avenue is not LLNL- and SNL/CA-related, closure of the road to public traffic would have very minimal impacts on the surrounding street system.

During 2002, both the city of Livermore City Council and the Alameda County Board of Supervisors vacated easement rights on East Avenue in the subject area, in effect removing it as a public street. Construction of the security checkpoints or other recommended street and system modifications commenced in May 2003.

Bay Area Rapid Transit District to Livermore Studies

The Bay Area Rapid Transit District (BART) (see Section 4.13.6) and the Alameda County Congestion Management Agency are co-sponsoring a study of a potential BART extension from its current terminus at the Pleasanton/Dublin Station to stations in Livermore. The two previously identified station locations in Livermore are in the I-580 corridor near Isabel Avenue

and near Greenville Road. BART owns property at both locations. Although the study recommendations confirmed the alignment and station locations previously identified, additional studies are currently taking place to analyze the potential for use of the Union Pacific Railroad Corridor through downtown Livermore, using diesel-powered train units. The current studies are being considered as interim, more affordable, solutions to the BART extension issue. The Union Pacific Corridor is located only a few hundred feet north of the Livermore Site near Patterson Pass Road, so additional commuter facilities on this line (now serving the ACE) would provide improved commute opportunities to LLNL employees.

Funds are available for preliminary engineering of the selected alternatives, but full funding of the extension is not currently available. The construction cost for the range of alternatives is about \$500 million to \$1 billion. The BART to Livermore studies are anticipated to continue beyond 2003.

I-580 Improvements

The California Department of Transportation is conducting a study to determine the details of a plan to construct high-occupancy vehicle (HOV) lanes on I-580 between Santa Rita/Tassajara Roads and Greenville Road. The HOV lanes project is estimated to cost between \$100 million and \$200 million and is not yet fully funded. The I-580 study is also examining ways to stage the project so that available funds can be used to construct feasible pieces of the ultimate project. The HOV lanes are expected to help reduce the prevailing commute-period congestion on I-580 between Pleasanton and the Altamont Pass.

Site 300

Traffic Conditions

Tesla Road is an east-west arterial highway located one mile south of the Livermore Site. The name of the road changes to Corral Hollow Road at the boundary between Alameda County and San Joaquin County near the western end of Site 300. The access for Site 300 is located on Corral Hollow Road, 13.1 miles east of Greenville Road. Between Site 300 and Greenville Road, the daily traffic on Tesla Road averages approximately 4,500 vehicles per day. In this area, Tesla Road is a winding two-lane roadway with no paved shoulders; the terrain is rolling. Posted speed limits range from 45 to 55 miles per hour in the vicinity of Site 300. East of the Site 300 access, Corral Hollow Road continues as a two-lane winding roadway, 4.1 miles to an interchange with I-580 south of the city of Tracy. Tesla Road is receiving increased usage during commute periods because of congestion on I-580 through the Altamont Pass.

Relevant Transportation Issues

Altamont Corridor Improvements

The cities of Tracy and Livermore and Alameda County have formed a joint powers authority to expend transportation impact fees collected from the developers of the Tracy Hills project in the city of Tracy. Although the Tracy Hills development has not yet commenced, its developers will be required to contribute \$1,500 per residential unit to help solve regional transportation issues in

San Joaquin and Alameda counties. A study is underway to determine the most effective way to spend these funds.

City of Tracy/San Joaquin County Plans

The California Department of Transportation is planning to improve I-205 between Eleventh Street in Tracy and I-5 near Lathrop. This project will widen the freeway from four lanes to six lanes and is scheduled to begin construction in 2004.

4.13.3 Traffic and Transportation Accident History

NNSA reviewed the California Statewide Integrated Traffic Records System accident reports for 1999, 2000, and 2001. The information was for all streets near the Livermore Site and Site 300 and included South Vasco Road, Greenville Road, Patterson Pass Road, East Avenue, and Tesla Road. The accidents are summarized in Table 4.13.3-1.

The accident rates on the main roads serving the Livermore Site are also compared with the average accident rates for similar roads in the State of California. Average accident rates in California on urban four-lane divided roadways are 2.18 accidents per million vehicle miles (MVM). For two- and three-lane urban roadways, the average rate is 1.93 accidents per MVM. For two-lane rural roadways, the average rate is 1.21 accidents per MVM.

Two of the 10 sections analyzed have accident rates above the statewide average. Both sections are on South Vasco Road between I-580 and Patterson Pass Road. The accident rates on the two sections within these limits are 2.48 and 2.43, about 114 and 111 percent, respectively, of the statewide rates. On these two sections, the roadway volumes are high, ranging from 26,200 vehicles per day to 30,000 vehicles per day. In the first section, the city of Livermore is planning to install traffic signals at Preston Road and improve the I-580 interchange, which should reduce the accident rate. In the next section to the south, traffic signals and street improvements have been made recently that should improve the rate.

The remaining eight roadway sections all have accident rates considerably below the statewide average, ranging from 6 percent to 40 percent of the statewide rates on the two- and three-lane sections, and from 18 percent to 28 percent in the four-lane divided sections.

Overall, the accident history near the Livermore Site is good, with 8 of the 10 sections analyzed having accident rates considerably below statewide averages, while 2 of the 10 sections had rates up to 14 percent higher than the statewide averages. The rates that are above the averages are either expected to be improved or are not considered to be significant.

4.13.4 Onsite Circulation and Parking

Livermore Site

Vehicle access to the Livermore Site is provided through five security gates and one shipping and receiving gate (Figure 4.13.4–1). The principal gate is on Westgate Drive from South Vasco Road. The Westgate Badge Office is also on Westgate Drive. Westgate Drive, having the highest volume, occasionally queues traffic into the intersection at South Vasco Road, causing congestion. In 2002, a traffic study was conducted when only four gates were operating. Data from that study indicated that Westgate Drive handled 36 percent of the traffic; 8,000 vehicles per day enter and exit (LLNL 2002be). The study also showed that, with the exception of the shipping and receiving gate from East Avenue, the least used gate is the Southwest Gate. The East Avenue gate had 18 percent of the traffic; 4,000 vehicles per day enter and exit. Total weekday traffic into the five gates in the 2002 study was approximately 22,000 vehicles. In late 2002, the Mesquite Gate from South Vasco Road was opened to provide the fifth access gate.

The Livermore Site and SNL/CA, through a shared initiative, are in the process of placing the section of East Avenue between South Vasco Road and Greenville Road under enhanced security control. The roadway is scheduled to be closed to public traffic and will become a Property Protection Security Area known as the East Avenue Corridor Property Protection Area, with guard kiosks at both ends and additional traffic lane modifications (DOE 2002i). The three original East Avenue gates will continue to provide secure access to the Livermore Site. A truck inspection station for deliveries will be constructed at the northwest corner of Greenville Road and East Avenue and will only be accessible from the Greenville Road intersection. This project is part of the No Action Alternative and is currently under construction.

Once vehicles enter the site, traffic flow is dominated by an inner and outer circular loop road system shown in Figure 4.13.4–1. Two roundabouts (traffic circles) facilitate flow of traffic into and out of the loops. The onsite transportation system is also characterized by roads and streets, meandering bike and pedestrian pathways, and parking lots. Even during peak traffic periods, traffic at the Livermore Site is light. In 1999, LLNL commissioned a study of onsite traffic to obtain recommendations for improvements in traffic flow (Korve 1999). Improvements in pavement markings, signage, lane widths and crosswalk locations and elimination of angle parking were suggested and are continually being implemented.

As of mid-2002, there were approximately 8,200 parking stalls at the Livermore Site to serve approximately 9,600 employees (i.e., LLNL employees, contract employees, DOE personnel, visitors with LLNL offices, and others, not including construction workers and consultants with sporadic presence). These stalls were provided in 73 designated institutional parking lots distributed across the Livermore Site and placed with a goal of limiting walking distance from vehicle to work location to 540 feet. Some of the parking lots have a surplus of stalls, and some have a deficit, but the overall parking stall supply and demand is approximately balanced for the site. Areas with a deficit of parking stalls adapt by employees parking in other areas, parking in non-institutional parking areas (e.g., unmarked areas around buildings controlled by building managers), and parking illegally. For some areas of the Livermore Site, parking presents a limitation on growth. The *Parking Master Plan and Parking Policy* (LLNL 2002bv) discusses parking issues and recommends mitigation measures.

The safety culture and transportation infrastructure at the Livermore Site have kept the traffic accident rate very low. The latest comprehensive study of traffic data covered the years 1992 to 1998 (Korve 1999). These data suggest that the full range of accidents typical of most urban areas occur in the Livermore Site, but that the rates are lower and the so-called preventable accidents are particularly low in number. The Traffic Safety Committee works closely with the Protective Force Division to review incident and violation reports to develop a better understanding of which locations might be considered hot spots.

Site 300

Access to Site 300 is through a single gate from Corral Hollow Road. Personal vehicles are only allowed in the parking area in the GSA just beyond the gate. Only government and contractor's company vehicles are allowed on Site 300 roads. The parking stall availability is adequate to meet demand. Traffic on Site 300 roads is extremely light.

4.13.5 Hazardous and Radiological Shipments

Livermore Site

LLNL ships approximately 4,000 containers per year of hazardous and radiological waste to approximately 50 different treatment, storage, or disposal facilities across the U.S. This results in about 200 separate shipments of hazardous waste, low-level waste, and mixed hazardous waste. Additionally, LLNL sends or receives approximately 300 shipments per year of hazardous or radioactive materials involved in the mission of LLNL.

The current shipment rate is approximately 22 low-level waste shipments per year to the Nevada Test Site near Las Vegas, Nevada, and 4 mixed low-level waste shipments per year to a mixed waste treatment facility in Kingston, Tennessee. In some cases, other destinations may be selected such as the Chem-Nuclear site in Barnwell, South Carolina, the DOE *Toxic Substances Control Act* (TSCA) incinerator in Oak Ridge, Tennessee, and the Envirocare facility near Clive, Utah. Transuranic waste shipments are expected to begin in 2004 with the shipment of approximately 1,000 drums that had accumulated while waiting for disposal capacity and waste characterization and packaging capability. This one-time campaign of approximately 24 shipments to the Waste Isolation Pilot Plant in Carlsbad, New Mexico, is the beginning of a smaller annual rate that will continue into the foreseeable future.

Radioactive materials are also shipped to and from the Livermore Site as part of its mission. These include plutonium metals and oxides, uranium metals and oxides, tritium, and other radioactive materials. Current annual shipments include approximately 11 shipments of special nuclear material (primarily plutonium and uranium), approximately 5 major shipments of tritium, and approximately 60 shipments of small amounts of miscellaneous radioactive material.

Radioactive wastes and materials are routinely transferred between Livermore Site facilities without leaving the boundaries of the site. These operational transfers have the potential to expose workers to direct radiation. Such radiation exposures are accounted for under facility operations as described in Section 4.16.2. In the event of an accident, the operational transfers also have the potential to release radioactivity to the public. LLNL has carefully examined onsite

transfers of radioactive materials and has established engineered and administrative controls to minimize the impact and frequency of such accidents. Two documents describe the envelope within which operations must occur to meet safety objectives. The *Onsite Hazardous Material Packaging and Transportation Safety Manual* (LLNL 1996a) prescribes operational requirements for smaller quantity transfers. The *Nuclear Material Transportation Safety Manual* (LLNL 2003e) prescribes the requirements for the larger quantity transfers. Consequences of accidents for operational transfers are reported in Section 5.5.5.

Site 300

Most of the hazardous shipments to and from Site 300 are explosives shipments. Radiological shipments, such as those containing depleted uranium, are infrequent and contain little radioactivity. Approximately 200 explosives shipments arrive per year and 100 are sent per year. The outgoing shipments include explosive waste that cannot be treated at the Explosive Waste Treatment Facility at Site 300. These explosive wastes are currently shipped to a licensed facility in Louisiana but could be shipped to other locations. The shipment of explosive materials can be hazardous. LLNL has analyzed the hazards of explosives transport and prepared procedures for safe operations (LLNL 1996a). All onsite and Site 300 shipment operations are conducted within the bounds of the safety envelop established by that analysis. All offsite shipments are conducted in accordance with U.S. Department of Transportation regulations. There have been no explosions or fires resulting from accidents with explosive shipments.

4.13.6 Alternate Modes of Transportation

Livermore Site

As of June 2002, 87 percent of Livermore Site personnel commuted to work alone in personal vehicles. The remaining commuters traveled by carpool (3 percent), vanpool (3 percent), bicycle (1 percent), and public transit (4 percent) (LLNL 2001d). Because the Bay Area suffers from heavy traffic congestion, LLNL has established programs to help commuters find alternative means to get to work.

LLNL's Transportation Systems Management Program maintains a database that commuters can use to advertise for new riders or to find an appropriate carpool. There are approximately 300 carpools in use. LLNL provides preferential parking for those willing to use carpools. Similarly, there are approximately 30 vanpools. Vans are either leased or privately owned. A LLNL incentive program provides gasoline at reduced prices for vanpools.

Mass transit opportunities include the ACE, BART, Livermore Amador Valley Transit Authority, and commuter buses. ACE is a rail service between Stockton and San Jose, passing through Livermore, Pleasanton, and other points along the route. The LLNL taxi service provides free shuttle service between the ACE Train South Vasco Station and the Livermore Site. BART provides rapid transit rail service from San Francisco, Oakland, and other points in the Bay Area with a station in Pleasanton/Dublin. WHEELS is a service of the Livermore Amador Valley Transit Authority and provides public transportation for the Tri-Valley communities of Dublin, Livermore, and Pleasanton, with stops at the Livermore Site. Commuter buses from points in San

Joaquin and Contra Costa counties provide service directly to the Livermore Site. A shuttle van also runs between the Livermore Site and the University of California campus at Davis.

Site 300

The LLNL Transportation Systems Management Program provides services for setting up carpools and vanpools for employees of Site 300. There is neither public transportation nor LLNL shuttle service to Site 300.

4.13.7 Aircraft Operations

The Livermore Municipal Airport is located just south of I-580 at Airway Boulevard. The Airport occupies 400 acres and has been in operation at its existing location since 1965. The airport has approximately 570 based aircraft and 250,000 annual aircraft operations. LLNL leases aircraft for research and conducts research while on aircraft managed by others. The manned and unmanned aircraft fly in the Livermore Valley and around Site 300, as well as other sites outside of the area.